In the Claims

Claims remaining in the application are as follows:

1. (Currently amended) A cooling apparatus ~~for usage in an electronic system~~ comprising:

a tube extending in a loop interior to an electronic system chassis, through a chassis wall, and exterior to the chassis; and

a liquid loop heat exchanger body comprising a parallel stack of closely-spaced plate fins enclosing and coupled to a portion of the loop external to the chassis and configured for attachment to an exterior surface of ~~an electronic system~~ the chassis.

2. (Currently amended) The apparatus according to Claim 1 further comprising:

~~a tube segment capable of enclosing a cooling fluid and positioned interior to the heat exchanger body; and~~

~~a plurality of fins configured in a~~ the parallel stack of closely-spaced ~~plates~~ plate fins arranged in a plurality of mutually parallel planes attached to the tube segment and arranged perpendicular to the chassis exterior surface.

3. (Original) The apparatus according to Claim 1 wherein:

the heat exchanger body is adapted for mounting on an exterior surface of a compact computer server chassis and has physical dimensions that are larger than can be contained within the chassis.

4. (Currently amended) The apparatus according to Claim 1 wherein:

edges of the parallel stack of closely-spaced plate fins of the heat exchanger body ~~is~~ are adapted for mounting on a frontal exterior surface of ~~a~~ the chassis.

5. (Currently amended) The apparatus according to Claim 1 further comprising:

a tube ~~capable of~~ enclosing a cooling fluid and extending in a loop that passes interiorly though the heat exchanger body external to the electronic system chassis, ~~and~~ passes through the electronic system chassis to cooling plates coupled to electronic components interior to the electronic system chassis.

6. (Currently amended) The apparatus according to Claim 1 further comprising:

a tube segment ~~capable of enclosing~~ configured to enclose a cooling fluid and positioned interior to the heat exchanger body; and

a plurality of fins configured in an ornamental arrangement attached to the tube segment at a frontal surface of the electronic system chassis.

7. (Currently amended) The apparatus according to Claim 1 ~~wherein~~ further comprising:

ones of the parallel stack of closely-spaced plate fins of the heat exchanger body ~~is variable~~ varying in width and height along a surface of the electronic system chassis ~~to accommodate~~ in an arrangement that enables access to indicator lights, ~~access to~~ removable input/output devices, and/or labeling.

8. (Currently amended) The apparatus according to Claim 1 wherein the tube exterior to the electronic system chassis further ~~comprising~~ comprises:

an inlet tube and an outlet tube coupled to the heat exchanger body; and

hinges coupled to at least one of the inlet tube and outlet tube enabling the heat exchanger body to be rotated away from the electronic system chassis for user and/or service access.

9. (Currently amended) The apparatus according to Claim 1 further comprising:

a pump coupled ~~into the tubing and capable of generating~~ to the tube and adapted to generate a pressure head suitable to drive a cooling fluid interior to the ~~tubing~~ tube through the loop interior and exterior to the chassis.

10. (Currently amended) A liquid loop cooling system comprising:

a tubing forming a loop that extends through an electronic system chassis interior to selectively apply cooling to interior system components and further exits the chassis to an exterior tubing segment exterior to the chassis; and

a liquid loop heat exchanger comprising a parallel stack of plate fins exterior to the chassis and coupled to the exterior tubing segment.

11. (Currently amended) The cooling system according to Claim 10 further comprising:

a pump coupled into the tubing ~~and capable of generating~~ and adapted to generate a pressure head suitable to drive a cooling fluid interior to the tubing through the loop interior and exterior to the chassis.

12. (Original) The cooling system according to Claim 10 further comprising:

at least one cold plate coupled to the tubing positioned to locally cool a heat source.

13. (Currently amended) The cooling system according to Claim 10 wherein the exterior tubing segment further ~~comprising~~ comprises:

an inlet tube and an outlet tube coupled to the heat exchanger; and

hinges coupled to the inlet tube and outlet tube enabling the heat exchanger to be rotated away from the electronic system chassis for user and/or service access.

14. (Currently amended) An electronic system comprising:

a chassis including airflow inlet and outlet vents, and fans capable of circulating air from the inlet vents to the outlet vents;

a plurality of components mounted within the chassis and forming local heat sources;

a tubing forming a loop that extends through the chassis interior to selectively apply cooling to the components and further exits the chassis to an exterior tubing segment exterior to the chassis; and

a liquid loop heat exchanger comprising a parallel stack of planar plate fins exterior to the chassis, ~~and~~ coupled to the exterior tubing segment, and arranged perpendicular to a planar surface of the chassis.

15. (Currently amended) The system according to Claim 14 further comprising:

a pump coupled to the tubing and ~~capable of pumping~~ adapted to pump a cooling fluid through the tubing.

16. (Original) The system according to Claim 14 further comprising:

at least one cold plate coupled to the tubing and selectively positioned to cool the local heat sources.

17. (Currently amended) The system according to Claim 14 further comprising:
at least one fan selectively positioned to drive air ~~through~~ in an airflow pathway passing between the parallel planar plate fins in the heat exchanger.

18. (Currently amended) The system according to Claim 14 further comprising:
at least one fan selectively positioned within the chassis, separated from the heat exchanger.

19. (Original) The system according to Claim 14 further comprising:
at least one fan coupled to the heat exchanger external to the chassis.

20. (Original) The system according to Claim 14 wherein:
the heat exchanger is adapted for mounting on an exterior surface of a compact form factor computer server chassis and has physical dimensions that are larger than can be contained within the chassis.

21. (Currently amended) A method of configuring a liquid loop cooling system in an electronic system comprising:
arranging a tubing in a loop extending through an electronic system chassis interior;
passing the tubing from the chassis interior through a chassis wall to the chassis exterior;
extending the tubing loop outside the electronic system chassis;
mounting a liquid loop heat exchanger including a plurality of mutually parallel planar plate fins on the exterior of the chassis, the mutually planar parallel plate fins being coupled to the chassis exterior perpendicular to a chassis surface; and
connecting the tubing loop ~~exterior to~~ outside the chassis to a liquid loop heat exchanger passing through and perpendicular to the mutually parallel planar plate fins.

22. (Currently amended) The method according to Claim 21 further comprising:
determining heat distribution within the electronic system chassis containing a plurality of components; and
arranging ~~a~~ the tubing in ~~a~~ the loop extending through an electronic system chassis interior to selectively apply cooling to heat-generating components.

23. (Original) The method according to Claim 21 further comprising:
coupling the tubing interior to the chassis to at least one cold plate selectively positioned to cool the heat-generating components.

24. (Currently amended) The method according to Claim 23 further comprising:
positioning at least one fan to drive air through the liquid loop heat exchanger, the at least one fan ~~be~~ positioned interior to the chassis, exterior to the chassis, or a combination of interior and exterior to the chassis.

25. (Original) The method according to Claim 23 further comprising:
inserting a pump in the tubing loop to enable pumping of a cooling fluid through the tubing and the heat exchanger.